Menlo Park Notebook #171 [N-80-10-12]

There are no dated entries in this notebook with the exception of one entry for October 12, 1880. The entries are by Francis Upton and Francis Jehl and consist of rough notes and calculations relating to lamp tests from Lots 1 and 2. There is also a table of lamps in Lot 2. The label on the front cover is marked "Lot 2 of 100" and "Oct 1880 F R Upton." The book contains 284 numbered pages. Approximately half the pages have been used.

LIBRARY OF THE

BOARD OF PATENT CONTROL,

120 BROADWAY, NEW YORK.

From Library
of
120 Broadway N.Y.

May 1, 1896

No. 1 taken off 3-37 to measure 36 cubic

feet Pipe at 3-50 minutes

37
— 13 — 13

6-50 A.M. 203 minutes

15.3
5.0
203
13
190

2

Taken off

6000
65.75
1412.5

1535
2
3070

1:8174
3.6222
3070
1522
1.3070
1.32226

21.4
2
42.8 annulus

Went 10-19 AM

368
19
407
15
392

—15

11 AM 5-20 Went

3

20
60
33
113 minute

93
20
113

4

3-42 a.m. W. out

16 minutes

5

11-48 a.m.

448
48
496

2-40 PM

40
568
608

5-28 AM

93
28
121

8

AM 8-52

273
52
325

9

15 AM [illegible]

60
33
15
108

93
15
108

AM 4-12 went

42
3
45 minutes

33
12
45

4-37 a.m.

37
33
70

33
37
70

7-47 a.m.

213
47
260

The following marked on invisible front cover
ventral

84 — 5.40 P.M.
57 — 5.43 "
36 — 5.43 "
98 — 5.48 globe very blue.
83 — 5.50 in glass
87 — 5.55
40 — 7.12

4-57 A.M. 30

$\frac{6\,12^{3}}{19}$

$\frac{57}{33}$

$\frac{}{90}$

4-52 P.M.

$\frac{68}{52}$

$\frac{}{740}$

1-15 P.M

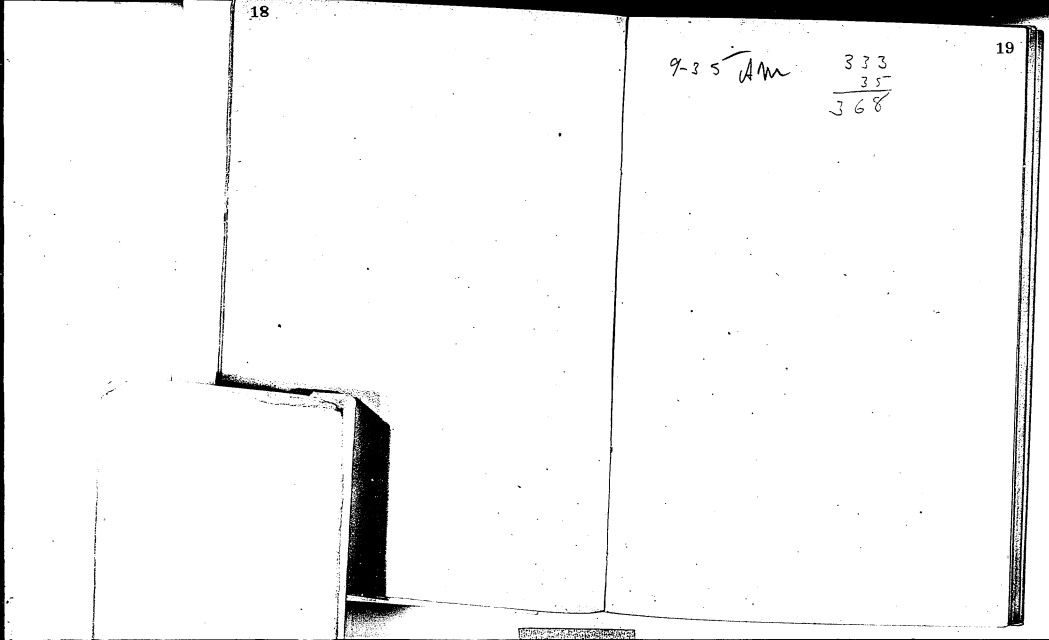
15
508
523

6-18 Am
153
171

15

9-35 Am

333
35
368



1 - 15 pm 507
15
522

6 - 50 a.m.

203 minutes

9-40 Mm. ~~Ans~~

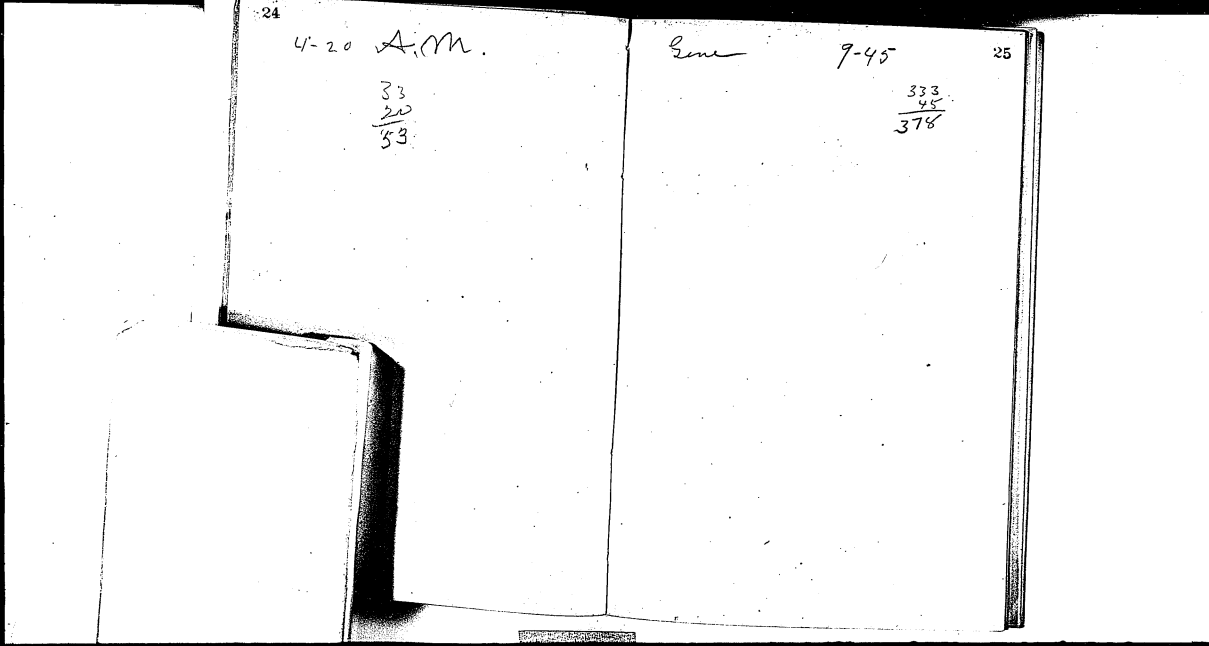
333
40
373

4-20 A.M.

33
20
53

Ernie 9-45

333
45
378



5-45 A.M.

45
93
138

5-45 A.M.

45
93
138

9-28 A M. 335
28
351

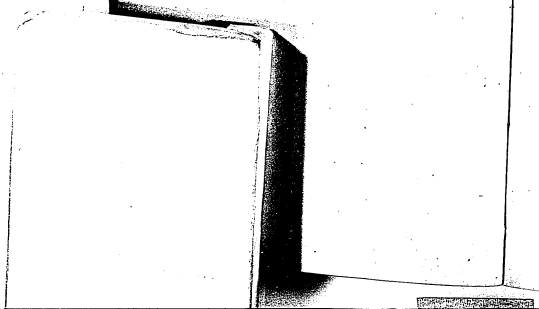
11-25 Adm - 448
25
473

A. Mg-26 Heat

26 65
53 25
119 90

6-56 A.M. 153 50 203 minutes 207

8-1 A.M. 273 21 294



7-30 AM ~240 / 3 / 243

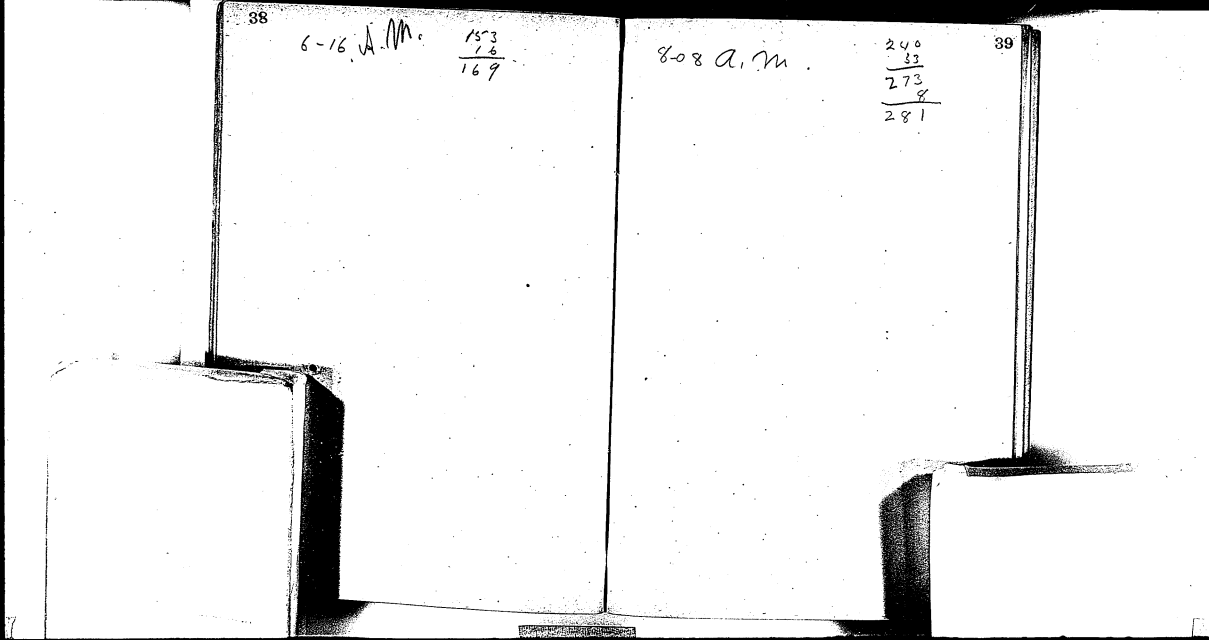
213 / 30 / 243

7-1 AM.

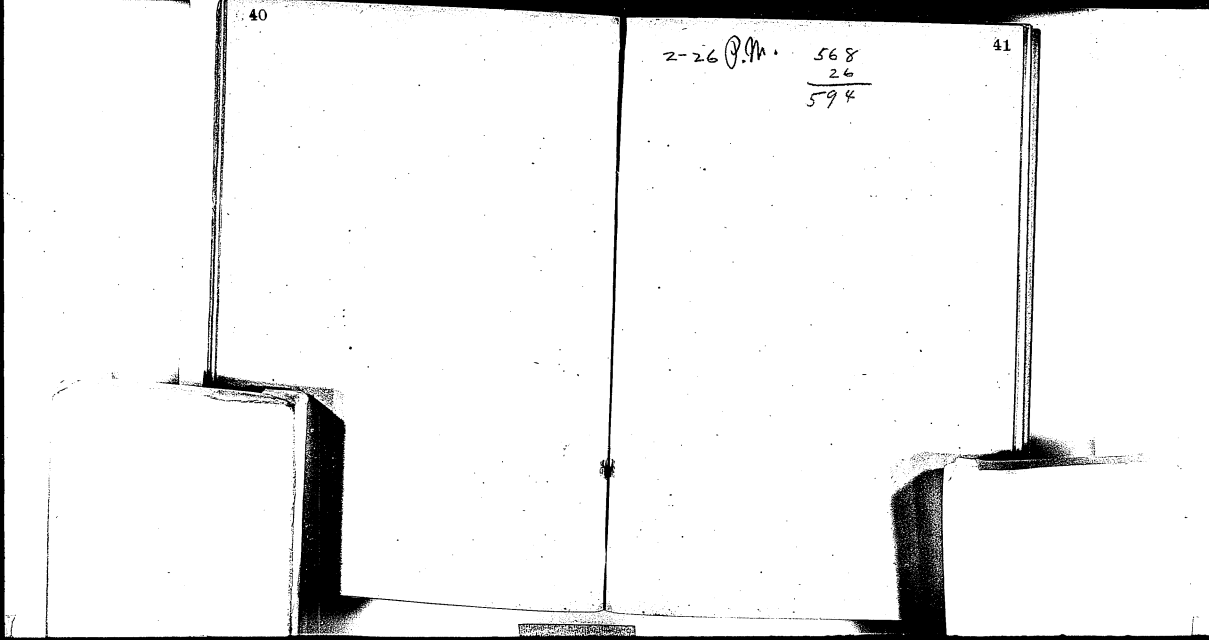
180 / 33 / 213 / 1 / 214

6-16 A.M. 153 / 16 / 169

8-08 a.m. 240 / 33 / 273 / 8 / 281



2-26 P.M. 568
26
594

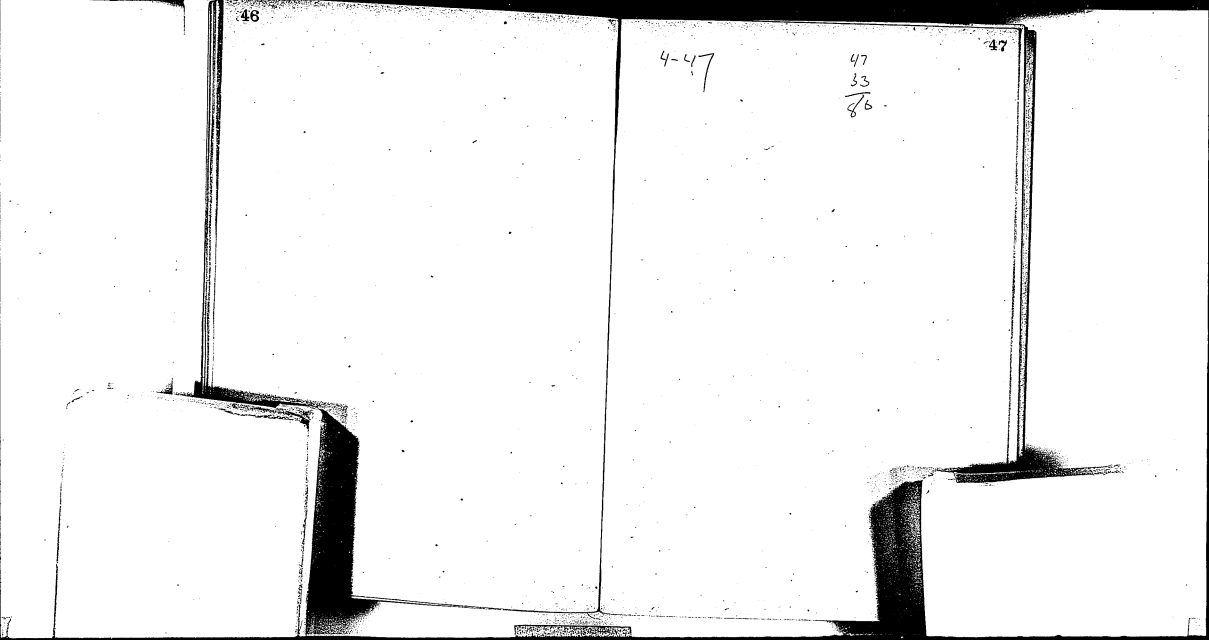


6-27 A.M. 153
27
180

6-24 A.M. 24
153
177

4-47

47
13
86



Went at 4-23

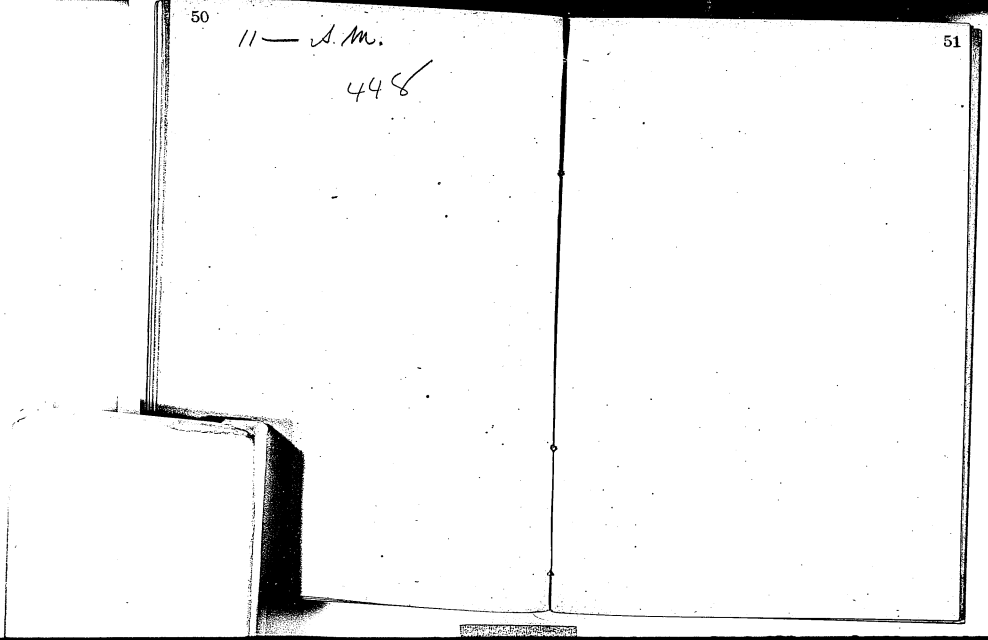
33
23
56

Went at 3-33 A.M.

6 minutes

11— A. M.

446



Went at 4-8 A.M.

38
3
41 minutes

35
8
41

Lamp 53 taken at 9-45
and formed to the 4/8 candles
at 10-5 it was brought
to 64" in bar impossible

34
54
136
68
12

68 34 17 | 3 4
6 3 | 5 4
9 | 1 3 6
8 2
1

17
17
119
17
9 | 289
32
2
64 candles

Left in Photometer room

6-9 visit

93
60
153
9
162 minutes

5-33 Taken down stairs to test

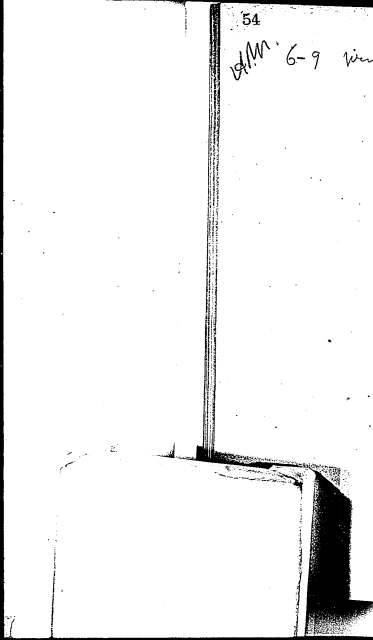
5.43 brought -16

66.875

3-55 P.M.

628
45
673

5-55
10
45



5-38 A.M.

93
38
131 minutes

93
38
131

8-11 A.M 93
41
134

8-3 9 A.M
93
37
130

A.M 4-35 Went

35
33
68

5-43 A.M

33
93
126

at 9-17 took down to test

9-30 brought back -13

3-15 P.M.

15
13
2
624
630 minutes

1-22 P.M 508
22
536

9-35 AM

333
35
368

5-41 AM

41
93
134

6 [illegible]Tn

60
93
153

[illegible]

[illegible]

[illegible]

6-23 A.M.

153
23
176

7-25 P.M

150
33
25
238

213
25
238

9-7 AM $\frac{337}{7}$

340

8-4 AM $\frac{240}{33}$

$\frac{273}{4}$

277

South
60
38
98
196

Did not go
5-30 a.m. West
43
30
123

Burnt remains at 158 and relit itself

P-M 2-4 West
588
4
592

6-5.0 AM 15-7
5-0
203

started at 6 again

3-47 a.m Went
20 minutes

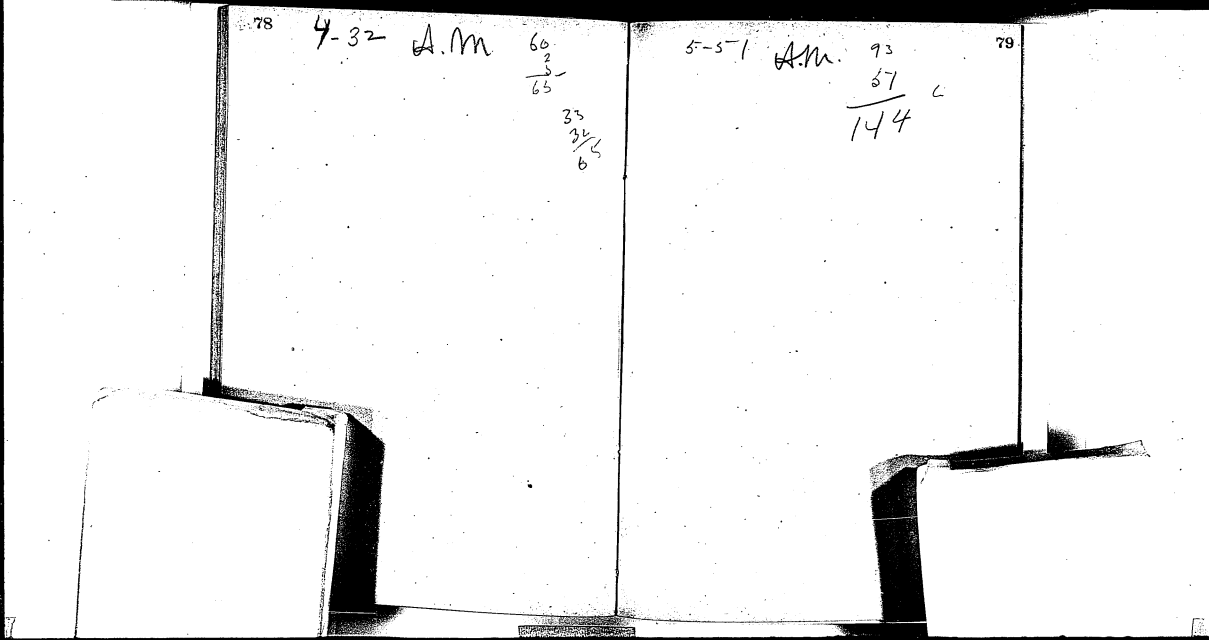
4-32 A.M

60
2
5
65

33
32
5
6

5-5-1 A.M.

93
51
144 C

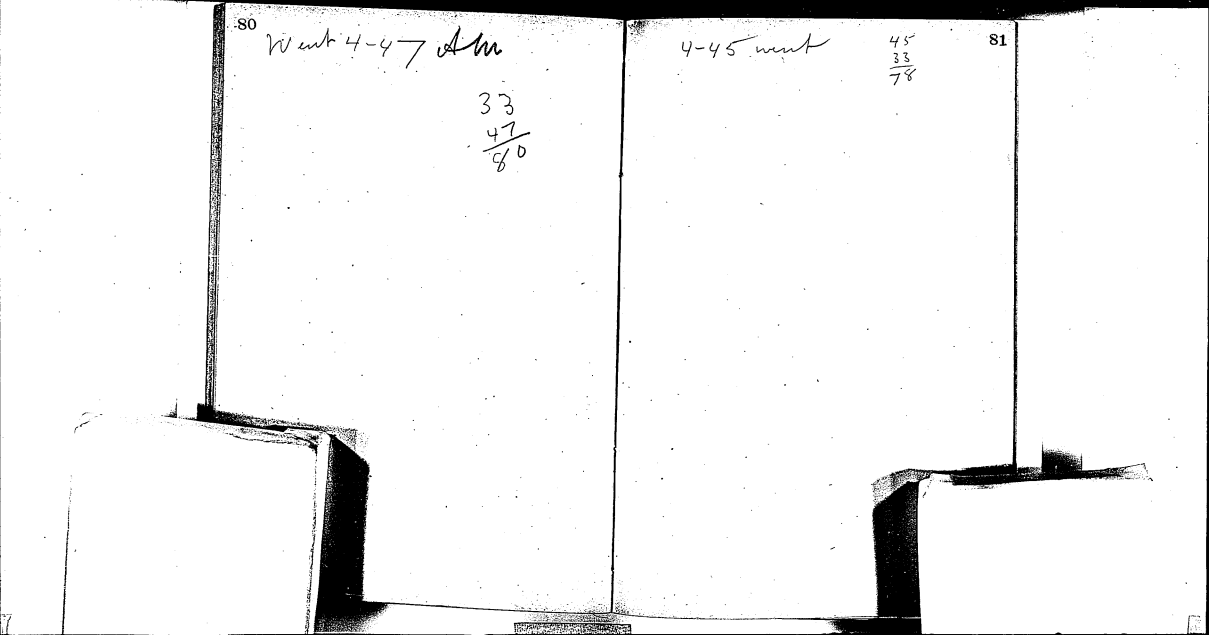


Went 4-47 Am

33
47
80

4-45 went

45
33
78



8-22-31 M.

273
22
295

4-30 Taken to measure
15 candles by photometer
4-40 replaced

P.M. 4-30 Taken to measure
4-48 returned
19 candles

AM 4-40 went

40
33
73

86

5-45 Work

93
45
138

87

3-5-7 Broke

30 minutes

10-21

273
21
294

383
21
404

10-55

388
55
443

383
55
438

5- 35 p.m.

688
35
723
60
783

Taken off 4-5
put back 4-20 — 15

Very high
80 candles

10-8. Went

38 3
15
368
8
376

5-5 A.M.

93
5
96

4-1 A.M.

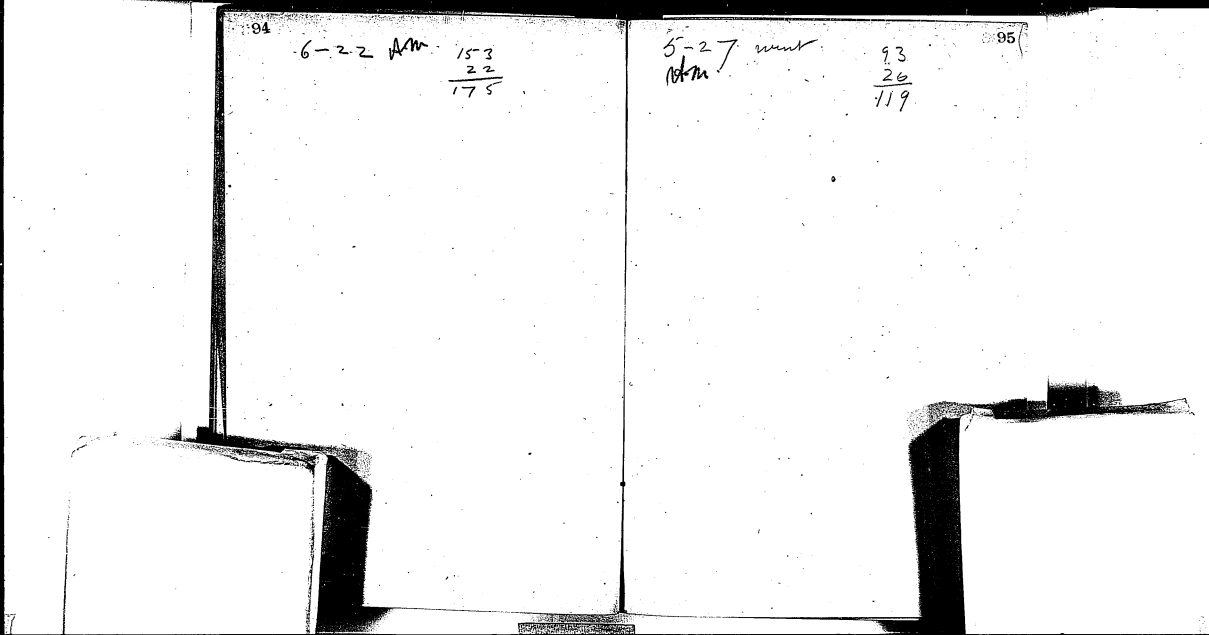
34 minutes

6-22 AM

153
22
175

5-27 mint
10 AM

93
26
119



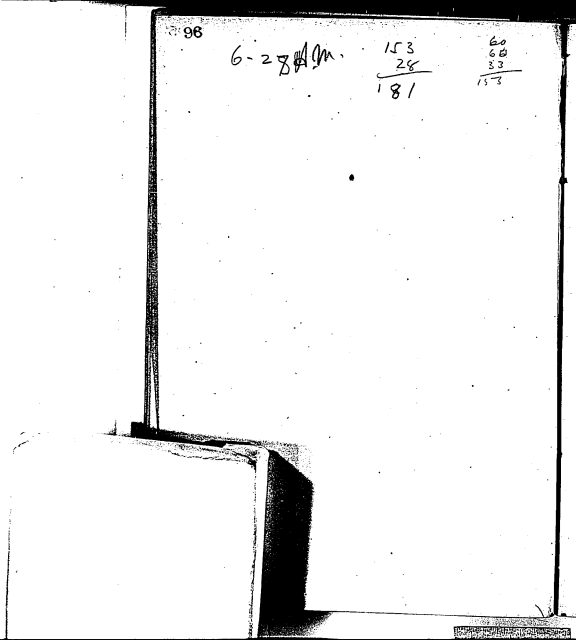
6-28 AM.

153
28
181

60
60
33
153

Mrs. 4-16 broke

30
16
3
49



508 at 1 P.M.
300
808 at 6 P.M.

8

12 Oct 80

Started at 2-5 a.m.
Light red

at 2-42 about 16 candles
The belts were loose and
slipped.

at 3 A.M started
at 48 candles

3-02 Stopped

At 3-10 A.M, began again
" 3-11 " Stopped
" 3-30 " Started 3 minutes
Stopped 5 minutes to change machines
Stopped 12-10

Lamps 46 ✓ 808 minutes
70 ✓
84 ✓ 813
57 ✓ 816
36 ✓ 816
98 ✓ 821
83 ✓ 823
~~67~~ ~~828~~
40 845

67 903
29 913
37 919
42 925
~~48~~ 940
53 970
22 1130
69 1182
18 1220
13 1315
51 ✓ 1355

16 Pro (1 · 19
16
146

808 minutes

595 started
600 stopped 25
833
7-5 a.m. started 60
890
950
1070
120
2 P.M 1190
120
4 P.M 1310
5 P.M 1370

202
202
404
134

135 : 161 :: 148 :

25150
4500
29650
148.25

2068
1703
8697
2468

177
148
29

135 : 156 :: 148

1931
1703
8697
2331

171
148
23

1303
1303
6464
8297
7367

5450

Test of the Carriage
That I were on the table
and turning some
time:
Francis Galton

No 53 Test No 2

Ellf 202 - 202 135 Volts.
R 25150 + 4500 / 200 148 Ohms
C 48
Ellf 170 170
R 25150 + 6200 / 200
C 16

215 + 215 = 430 → 143

314 − 15 = 299 → 164

1931
2146
8447
2526

179 + 164 = 343 → 13

1553
1553
8069
6464
7639

5800 ft

57 no 2 107

EMF 215 − 215 143 Volts

R $\frac{31400 + 150\,\Omega}{200\,\Omega}$ 164 Ohms

C 48

EMF 145 − 145

R $\frac{31400 + 290\,\Omega}{200\,\Omega}$

C 16

406 / 135

314 / 7 / 321 / 160

.8069
1303
7932
7304
2696

148 : X :: 135 : 156 :: 148 : X

$X = \frac{148 \times 156}{135} = \frac{148 \times 1\frac{1}{5}}{1\frac{1}{5 \cdot 6}}$

$\frac{1}{X} = \frac{1351}{148 \times 156}$

186
161
+ 25

1303
1303
.6464
7932
6602

4580

Ewf 208 − 203 135 Volts

R 31400 ÷ 200 16, Ohms

C 48

Ewf 189 − 189

R 31400 + 200 + 50 / 200

C 16

(434
144.6

No 46 no 2

ELLT 217–217 144.6

R

C

It wasn't up about ~~four~~ two minutes afterwards. Broke at the clamps

410 / 133

2515 × 42 = 2935 / 146.7

1931
1673
876.0
2364

172 − 147 + 25

8240
1240
8326
6464
7270

5330

No. 51 no 2

Ckt 205 − 205 — 733 Volts

R $\frac{25150 + 4200}{200}$ — 147 Ohms

C 48

Ckt 175 − 175

R $\frac{25150 + 5700}{200}$

C 16

5470
156

376.5
7
3835
196.7

1931
2945
8069
2945

197

1931
1931
7655
6464

7381

5470

No 18 No 2

Ent 235-235 156 Yards

R 37650 + 700 / 200 197 Runs

C Blue at the Camps

Ant 208 - 208

R 37650 + 3000 / 200

C Blue at the Camp

Ohms
137

25150
59
3205
155.2

1931
1903
8761
2595

181
155
+ 26

1239
1239
8097
6464
7039

5050

No 40 Lot 1

E/M+ 200 — 200 133 Volts

R 25150 + 5900 155.2 Ohms
2 0 0

C 48 505.0

E/M+ 170 — 170

R 25150 + 7700
200

C 16

430 / 143

314 + 43 = 357

357 / 178

1931 + 2504 = 8447

8447 / 2882

194 / 178 / 16

1553 + 1553 + 7496 + 6464 = 7066

5090

No 1 Lot 1

Cut 215 — 215 143 Volts

R 31400 + 4200 / 200 178 Ohms

C 48

Cut 190 — 190

R 31400 + 5900 / 200

C 16

1484
161

37650
1600
39250
196

2068
2068
6464
7077
7677

5850

931

13. Lab 2

Emf 242–242 161 Volts

R $\frac{37650 + 1600}{200}$ 1968 ohms
5850 ft lbs

C 48
Reheat the lamp

Emf 218–218

R $\frac{37650 + 3300}{200}$

C 16

1440 / 146

25150 / 3000 / 28150 / 140.7

2 164.4
2 164.4
1 64.64
7.93-18
39270

8450 ft. lbs

1981
1482
8356
1769

150
140.
+ 10

No 22 2nd set

EMF 220 - 220 / 147 Volts

R 25150 + 2000 / 2000 / 140.7

C 48 Blue at the clamp

EMF 192 - 192

R 25150 + 4800 / 2000

C 16

25150
2300
27450
137.

205
2.
410
137 Volts

1931
1367

156
137
+ 19

1367
6464
7831

6660

No 67 Lot 2

Cuit 205-205 137 Volts

R 25150 + 2300 137 Ohms
2000

C 48
Blue at the Lamps

Cuit 175-175

R 25150 + 4200
1200

C 16

140

314
18
332
166

1931
2201
8539
2671

185
166
+19

1461
1461
6464
7799
9185

5220

47 Lot 7 145

Emt 210 — 210 140 Volts

R 31400 + 1800 1660hms

C 48

Emt 179 — 179

R 31400 + 2800 / 200

C 16

197
197
394
131

25150
2700
27850
139.25

1931
1434
8827
2192

165
139
+26

1173
1173
8566
6464
7376 5460

Emf 197 − 197 131 Volts

R $\frac{25150 + 2700}{200}$ 139.25

C 48

162 − 162

Emf

R $\frac{4400 + 25150}{200}$

C 16

220
221
441
·147

314
52
366
183

1931
2625
8356
2912

195
183
+12

1644
1644
7375
6464
7127

5160

Circuit 220 – 221 147 Volts

R $\frac{31400 + 5200}{200}$ 183 Ohms

C 4 Blue at the clamp

Circuit 193 – 193

R $\frac{31400 + 7400}{200}$

C 16

223 / 446 / 149

314 / 34 / 348 / 174

1931
2405
8268
2604

182
174
+ 8

1732
1732
7594
6464
5522

5650

To 88 Ext

EM7 223 – 223 149 Volts

R 31400 + 34000 / 200 174 Ohms

C 48
Blue at the Lamp

EM7 195 – 197

R 31400 5700 / 200

C 16

No 70 Roll 2

Cwt

R

C

went up at the Camp.

Cwt

R

C

235
232
467
156

2(235 0
12
314
30
344
172

1931
2355

1931
1931
6464
7645
7971 6260

Emf Buck spot on the side
235 - 232 156 Volts

R 31400 + 3000 / 2000 1720hms

C 4F
Blue at the Clamp.

Emf 198 - 198

R 5600 + 3140 / 2000

C 16

418 / 139

2515 / 23 / 2745 / 1372

1931
1367
5570
8868

153
137
+16

1430
1430
8533
6967
7957

6240

Eu7 209 − 209 — 139 Volts

R 25150 + 2300 / 200 — 137 Ohms

C 48

Eu4 182 − 182

R 4900 + 25150 / 200

C 16

450 / 150

314
15
329
164

1931
2148
8239
2318

171
164
+7

1761
1761
7852
6464
7838

6070

No 42 Lot 2

Emf 225 – 226 — 150 Volts

R 31400 + 1500 / 200 — 164 Ohms

C 48 Blue at the clamps

Emf 196 – 195

R 31400 + 3400 / 200

C 16

$$\frac{312.6}{2} = 1552 \qquad \frac{314}{2} = 157$$

1931

$+ 1$

1903
1903
6464
8013
8283

6730

No 86 Sht 2

Cut 218 – 218 — 155 Wks

R $\frac{31400 + 200}{200}$ — 158 Ohms

C 48

Cut 185 – 185

R $\frac{2000 + 3140}{200}$

C 16

1427 / 142 — 819 / 159

1931
2014
8477
2422 — 175 / 159 / 16

1523
1523
7986
6464
7496 — 5620

43 Prob 2

Ckt 212 − 45 = 142 Volts

R 31400 + 500 / 200 = 159 ohms

C 48

Ckt 180 − 180

R 31400 + 2000 / 200

C 16

1428 / 143 — 314 / 5 / 319 / 159

1931
2014
8447 / 2392 — 173 / 159 / + 14

1553
1553
7986
6464
7506 — 5630

No 40 Lot 2

Ewt 214 – 214 153 Volts

R 314000 + 500 / 2000 159 Ohms

C 48

Ewt 185 – 185

R 314000 + 250 / 250

C 16

440
147

314
15
329
164

1931
2148
8327
2406

174
+18

1673
1673
7852
6464
7662

5640

No 37 Lot 2. 187

Ewt. ~~240 240~~ 220 - 220
147 bales

R 314 00 + 150 00
200 164

C 48

Ewt 157 - 157

R 314 00 + 32 00
200

C 46

25·1.5
37
28.85
1442

1931
1584
8539
2054

161
144
+17

1461
1461
8416
6464
7862

6030

No 91 Ref 1

EMF 210 210 140 Volts

R $\frac{25150 + 3700}{200}$ 144.2 Ohms

C 48

EMF 178–176

R $\frac{25150 + 300}{200}$

C 16

Blackened globes 7.a.m Saturday

37

40

43

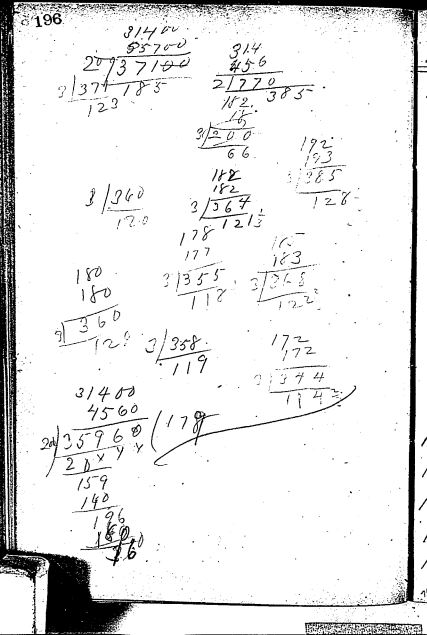
51

53

67 very slightly

69 slight

91 brighter Nung



Lot No. 2 — 16 Candle Power.

No	Ohms	Volts	No	Ohms	Volts
1	183	127	18	179	123
2	163	118	19	174	124
3	192	128	20	165	117
4	168	123	21	179	144
5	157	115	22	148	116
6	174	121	23	163	182
7	172	120	24	172	130
8	171	119	25	[illegible]	[illegible]
9	181	120	26	150	118
10	185	124	27	190	134
11	185	127	28	176	124
12	159	119	29	176	118
13	168	120	30	163	123
14	177	136	31	194	137
15	168	113	32	163	120
16	152	109	33	172	117
17	194	130	34	191	129
			35	181	118
			36	190	126

Average Ohms
172.

Average Volts
119.

2698
2812
2949
8126

66 | 11585 | 174
66 X X
498
462
265
264
1

1905
1784
2300
2060

66 | 8049
122 Volts.

Ohms

2934
3106
2698
2812

585 | 172
X X
85
469
134

2006
2300
1784
1905

67 | 7995 | 119
67 X X
129

6255
6033
22

Average
2967
Ohms

See page 201

Continuation of Lot 2

No.	Ohms	Volts	Cd	No	Candles Ohms	Volts
37	178	116		53	162	113
38	244	140		54	187	123
39	167	117		55	172	115
40	168	113		56	184	120
41	152	115		57	187	121
42	154	112		58	177	120
43	173	119		59	179	117
44	183	120		60	178	123
45	162	111		61	182	127
46	166	119		62	165	113
47	206	124		63	194	132
48	181	118		64	Too high not recorded	
49	Very high resistance			65	188	128
50	199	118		66	179	118
51	162	114		67	145	107
52	202	128		68	186	124
				69	147	107
8 @	2698	1784		69	2812	1905

Av. Volts – 122

Av. Ohms – 174

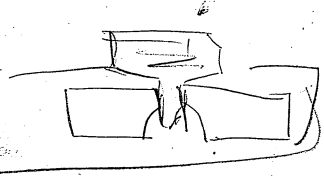
for 66 lamps

& lot 2

Em 7	R	Imard R
1		
109	93	17

Em7	Q	Imard
118	98	10
118	117	12
119	109	10
119	102	9

Em7	R.	Partial R
121	108	8
121	122	9
125	114	5
121	112	8
120	112	9
120	116	9
122	107	6
121	117	9
121	104	7
126	123	4
128	117	2
128	135	2



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